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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,544	12/11/2003	Blake C. Chenevert	EH-10967 (03-437)	7742
34704 7590 07/18/2007 BACHMAN & LAPOINTE, P.C. 900 CHAPEL STREET SUITE 1201 NEW HAVEN, CT 06510			EXAMINER NDUBIZU, CHUKA CLEMENT	
			ART UNIT 3749	PAPER NUMBER
			MAIL DATE 07/18/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/733,544	Applicant(s) CHENEVERT ET AL.	
	Examiner Chuka C. Ndubizu	Art Unit 3749	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on through 7/02/2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3, 4, 6-16, 18 and 20 is/are rejected.
- 7) ☒ Claim(s) 2, 5, 17 and 19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>070207</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

Receipt of applicant's amendment filed May 14, 2007 is acknowledged.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The recitation "means for movably supporting the combustion conduit at one or more locations along a length of the combustion conduit" in claim 1 is ambiguous. It is not clear whether the Applicant is referring to fig. 6 para [0026] (means for supporting the associated conduit segment) or fig 2, which shows means for movably supporting the combustion conduit at locations along the length. For the purposes of examination the Examiner assumes the recitation to refer to fig. 2 and means for movably supporting the combustion conduit at locations along the length.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1, 3, 7-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Hunter 5,494,004. Hunter teaches the invention as claimed (see figs. (1- 11)), an apparatus for cleaning a surface within a vessel, the apparatus comprising: an elongate combustion conduit 21, 31 extending from an upstream end 103 to a downstream end 35 associated with an aperture 81 in a wall of the vessel 83 and positioned to direct a shock wave toward said surface (column 6 line 47,48); and means for movably supporting the combustion conduit (rail and 151R and 151F, 131,155) at one location along a length of the combustion conduit (column 3 line 56-67); (claim 3) the combustion conduit comprises at least one curved portion 33; (claim 7) wherein a nozzle portion 229 of the combustion conduit is parallel to but offset from a second portion of the combustion conduit (see Fig. 7); (claim 8) said second portion (rest of the conduit other than 229) forms a majority of a length of the combustion conduit (fig. 7); (claim 9) wherein the combustion conduit comprises a plurality of segments 21 31 assembled end-to-end; wherein the apparatus further comprises, braces 181 spanning a length of at least one of the segments (implied in fig 6); wherein there are at least first 181 and second 181 such braces opposite each other and coupled to each other by at least one clamp 183 grasping a body 209 of an associated one of the segments.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

Art Unit: 3749

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

2. Claims 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hunter in view of Chappell 3,216,046. Hunter teaches the invention as claimed and as discussed above.

However, Hunter does not teach an apparatus, wherein the braces are external; wherein there are third and fourth such braces respectively aligned end-to-end with the first and second external braces and secured thereto and extending relative thereto at a non-right and non-zero angle; wherein there is a support structure integral with the wall; and the means includes at least one hanger supporting the combustion conduit from the support structure.

Chappell teaches in a an apparatus for cleaning a surface within a vessel (figs. 1-8), the apparatus including external braces 92 Fig 3; wherein there are third 68 and fourth 68 such braces respectively aligned end-to-end with the first and second external braces 92 and secured thereto (by 128) and extending relative thereto at a non-right and non-zero angle (68 is at an angle between 0 and 90 degrees, fig 3); wherein there

is a support structure 10 integral with the wall; and the means includes at least one hanger 28 supporting the combustion conduit from the support structure.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Hunter's cleaning apparatus to include all the limitations taught by Chappell and recited above in order to provide a long cleaning apparatus with minimum gravitational deflection as taught by Chappell (column 2 line 45-47).

1. Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hunter in view of Menegaz et al 4,095,935. Hunter teaches the invention as claimed and as discussed above.

However, Hunter does not teach, a cleaning apparatus, wherein the support means comprises one or more spring hangers comprises a plurality of spring hangers; wherein at least one of the spring hangers engages the conduit via one or more snubbers.

Menegaz teaches in a furnace (fig 1, 4,5), a furnace comprising a plurality of spring hangers 144 (with spring 150) for a catalytic tube 34; wherein at least one of the spring hangers engages the conduit via one or more snubbers 146 (146 is capable of functioning as a snubber).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Hunter's support means by including all the limitations taught by Menegaz and recited above in order to provide a support capable of accommodating expansion due to large thermal effects as taught by Menegaz (column 6 line 26-31).

2. Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chappell. Chappell teaches the invention as claimed (fig 1-8) an apparatus for cleaning a surface within a vessel, the apparatus comprising, an elongated combustion conduit 24 extending from an upstream end to a downstream end (fig 1) associated with an aperture 14 in a wall of the vessel 16 and positioned to direct a high pressure medium toward the said surface; and one or more constant load hangers 28 support the combustion conduit at one or more locations along the length of the conduit (column 4 line 23-28); the combustion conduit comprising at least one curved portion (at 26 fig 1).

Chappell does not specifically teach the use of shock wave but he teaches the use of high pressure-blowing medium (column 1 line 15, 16), which could include shock waves. Therefore one of ordinary skill in the art would recognize that Chappell's blowing medium is capable of being a shock wave.

3. Claims 18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chappell in view of Menegaz. Chappell teaches the invention as claimed and as discussed above.

However, Chappell does not teach a conduit support wherein the one or more hangers comprises a plurality of spring hangers; at least one of the spring hangers engages the conduit via one or more snubbers

Menegaz teaches in a furnace (fig 1, 4,5), a furnace comprising a plurality of spring hangers 144 (with spring 150) for a catalytic tube 34; at least one of the spring hangers engages the conduit via one or more snubbers 146

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Chappell's support means by including all the limitations taught by Menegaz and recited above in order to provide a support capable of accommodating expansion due to large thermal effects as taught by Menegaz (column 6 line 26-31).

Allowable Subject Matter

Claims 2, 5, 17 and 19 are objected to as being dependent upon rejected base claims, but would be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims. Claims 2 and 5 will be allowable pending the resolution of the 112 (2nd) issue in claim 1.

The following is a statement of reasons for the indication of allowable subject matter: With regards claim 2, the prior art is not considered to disclose, teach or suggest a cleaning apparatus having a combination of the structural elements recited in claim 2 including , a vessel, which has a first external tube bundle and a second external tube bundle; and the combustion conduit passes above the first external tube bundle and below a the second external tube bundle.

With regards claims 5, 17 and 19 the prior art is not considered to disclose, teach or suggest a cleaning apparatus having a combination of the structural elements recited in the claims including, spring hangers engage first portions of the combustion conduit; and a second portion of the combustion conduit downstream of the first is held relative to the vessel so as to vertically move with the vessel due to thermal expansion of the vessel, the hangers compliantly accommodating such vertical movement.

Response to Arguments

Applicant's arguments filed on May 14 2007 have been fully considered but they are not persuasive. Applicant's argument traversing the rejection of claim 1 on the grounds that the rejection lacks the required analysis has been considered. The recitation "means for movably supporting the combustion conduit at one or more locations along a length of the combustion conduit" in claim 1 is ambiguous. It is not clear whether the Applicant is referring to fig. 6 para [0026] (means for supporting the associated conduit segment) or fig 2, which shows means for movably supporting the combustion conduit at locations along the length. For the purposes of examination the Examiner assumes the recitation to refer to fig. 2 and means for movably supporting the combustion conduit at locations along the length. This is the basis for the rejection.

Applicant's argument traversing the rejection of claim 7 on the grounds that the cited Fig 7 involves a stowed configuration and not when in use has been considered. Examiner notes that Hunter's nozzle 229 is parallel and offset when segment 31 unfolds in use.

Applicant's argument traversing the rejection of claim 10 and 11 on the grounds that elements 181 and 183 are not braces and clamps have been considered. The Examiner applied the broadest interpretation based on the dictionary definitions of brace and clamp.

Applicant's arguments with respect to claims 14-17 have been considered but are moot in view of the new ground(s) of rejection. Elements 92 and 68 are asserted as


braces based on broad interpretation of brace. Figure 3 of Chappell, clearly show that 68 is at an angle between 0 and 90 degrees.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chuka C. Ndubizu whose telephone number is 571-272-6531. The examiner can normally be reached on Monday - Friday 8.30 - 4.30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve McAllister can be reached on 571-272-6785. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


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